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THE WEST SIDE IMPROVEMENT

AND ITS RELATION TO ALL OF

THE COMMERCE OF THE PORT OF NEW YORK

R. A. C. SMITH

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To

The Chamber of Commerce of the State of New York,
The Merchants' Association of New York,
The Maritime Association of the Port of New York,
The New York Board of Trade and Transportation,
City Club,
Bronx Board of Trade,
Harlem Board of Commerce,
Central Mercantile Association,
Queens Borough Chamber of Commerce,
Fifth Avenue Association,
Gansevoort Market Business Men's Association,
Jamaica Bay Association,
South Brooklyn Board of Trade,
Brooklyn Committee on City Plan,
Erie Basin Board of Trade,

As a member of a number of your associations and as a citizen vitally interested in the welfare of the City of New York, I have devoted an immense amount of time and energy in working with you upon the various port problems which have come up for solution from time to time. In my official capacity it has been a constant source of satisfaction to have been able to rely upon the sympathetic assistance and advice of all of you. Intelligent citizen co-operation in public problems by those who have had intimate experience along similar lines in connection with their own private affairs is the most valuable force which a public officer can have behind him.

No problem in recent years has pressed more insistently for solution than the disposition to be made of the West Side trackage of the New York Central Railroad. No single element is more important in the

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organization of the Port of New York than the all-rail freight service to Manhattan Island furnished by this road.

There has been such a confusing mass of conflicting statements with reference to the proposed settlement under consideration by the Board of Estimate and Apportionment that it is almost impossible for the average citizen to form an intelligent judgment even where he is possessed of the special knowledge of transportation problems which many of your members undoubtedly have.

I have therefore prepared a complete statement of the situation, presenting so far as possible not only the arguments in favor of the proposed contract but also the more important objections which have been raised to it from time to time. It is my hope that a reading of this statement will present the essential facts in such form that an intelligent judgment can be based upon them. I feel strongly that if the important commercial interests in the Port of New York realized fully the gravity of the transportation crisis which would result through failure to reach a correct solution of the New York Central problem that there would be the most active public interest concerning it.

The official reports necessarily do not cover the subject primarily from the standpoint of its relation to the general port problem. It has therefore seemed worth while to attempt to treat the matter in comprehensive form in order to emphasize its commercial side and its relation to the future prosperity of the entire Port.

R. A. C. Smith.

August, 1916.

I

THE WEST SIDE IMPROVEMENT

THE modernization and improvement of the freight tracks of the New York Central Railroad now under consideration by the Board of Estimate and Apportionment upon the report of its Committee on Port and Terminal Facilities, is a project which vitally affects the commercial welfare of the Port of New York, and in no small measure the prosperity of the State and the Nation. An examination of the objections which have been raised to it, however, and of the reasons urged upon the City for rejecting the proposed settlement shows not the slightest realization by the public of this fact. Anyone unfamiliar with the problem would gather from the objections raised that the Board of Estimate was considering a purely local matter, the chief feature of which was the landscape treatment of Riverside Park.

The aesthetic features of the plan are important and at no time do I mean to minimize them, but no fair estimate of the question will make them paramount and as a matter of fact the real difficulty in solving the aesthetic features exists in the diversified opinion on the many plans suggested by the landscape experts for the perpetuation and improvement of the natural landscape features.

Three years' study as Commissioner of Docks, charged with the administrative direction of the largest port in the world, following a lifetime of active partici-

pation in its commercial life, has convinced me that our citizens generally are not awake to the very serious position in which our commerce has been placed through neglect of our terminal organization. The City's magnificent harbor and waterways have presented the opportunity and occasion for our commercial supremacy. At the same time, by the barrier which they present to rail connection with the rest of the country, they have made it necessary to work out some adequate plan for relieving our commerce of disadvantages which rest upon it, due to the impossibility of providing the type of terminal organization which is readily obtainable in other places. The City has gone blindly ahead year after year, relying upon its natural advantages and ignoring or making but slight effort to overcome its natural disabilities.

There has been a constantly increasing burden upon the merchants and manufacturers of the City, particularly in the Borough of Manhattan, which has been borne with surprising patience, but which must sooner or later be lifted or avoided by locating in other places.

The New York Central is the only one of the trunk line railroads which reaches the Borough of Manhattan by an all-rail route; the other railroads have their main freight terminals on the New Jersey side of the Hudson river and lighter Manhattan freight to waterside stations on car floats. This service at the present time is absorbed in the through rate through the creation of "free lighterage limits" which extend on the North River from the Battery to 135th street, on the East River from the Battery to Jerome Avenue Bridge, including the Harlem River side of Wards and Randalls Islands, and on the Brooklyn and Queens shores from Pot Cove, Astoria, to 67th street, Bay Ridge, including

Newtown Creek, Dutch Kills and parts of Wallabout and of Gowanus Canals.

There is now pending before the Interstate Commerce Commission a petition brought by the New Jersey Board of Commerce and Navigation to compel the railroads to make the basic rate not to the Port of New York, but to end the through rate on the New Jersey shore and add to all New York shipments the cost of the lighterage service. The 4th Annual Report of the New Jersey Commission contains the following interesting statement quoted from the Secretary of the Newark Board of Trade:

> "If we could compel a rearrangement of rates whereby Newark and adjacent territories would have a rate separate from New York, New York being forced to pay an additional rate to cover the cost of lighterage, we would soon see all of our adjacent undeveloped land improved and built upon, and in my judgment it would force the development of Newark Bay and make it what it ought to be, a real seaport and a very important one at that."

Whether the proceeding is successful or not, it shows clearly a danger which the shippers of New York will be continually called upon to face, unless there be some plan worked out for their protection.

The only really effective defense which the City can employ is to make it the selfish object of the various trunk line railroads to improve their service to the City of New York. If these railroads can be assured of securing the same amount of tonnage whether they haul from the east or the west side of the Hudson River,

there is no reason to believe that they will be particularly interested in continuing to assume the added burden of free lighterage, or in making the capital outlay for all rail connection and improved New York terminals.

It is safe to assume that all of them are willing to shift as much of the burden of terminal service as possible to the shipper. Even to-day one of the chief reasons why the lighterage is absorbed in the through rate is the ability of the New York Central Railroad to reach Manhattan by direct rail connection.

Incredible as it may appear, there are persons so shortsighted that they do not recognize this perfectly obvious fact and apparently would welcome the abandonment and removal of the New York Central's west side tracks.

Aside from the purely local importance of the west side terminal system its direct relation to the prosperity of the State and Nation is equally obvious. As President Loree of the Delaware and Hudson, pointed out in a very able address before the Chamber of Commerce during its consideration of the matter, the commerce of the State of New York is peculiarly circumscribed by the topography of the State. Over 80 per cent. of the population of the State is confined within a belt ten miles wide extending up the Hudson and through the Mohawk Valley. At least as great a percentage of the State's commerce is confined within the same area. The New York Central Railroad is the one rail line equipped to serve this territory and the service which it is in a position to give is, therefore, directly reflected in the prosperity of practically the entire State.

Turning for a moment from the consideration of the purely commercial side of the problem and looking at it from the standpoint of national defense, it is of the greatest importance that a railroad occupying the strategic position of the New York Central should be in a position to serve the needs of the United States Government in time of war. Tapping, as it does, a tremendously important source of the supply of food and industrial products it would be of the greatest importance to facilitate their prompt delivery to the port which everyone admits would undoubtedly be the most important center of defence and attack in the event of foreign war. For the purpose of the present discussion this of course is a purely collateral matter, but it is one which is now receiving the earnest consideration and attention of the War Department of the United States and one which the public generally can very easily overlook.

No railroad is stronger than its terminals. The efficiency of the entire main line is almost wholly dependent upon the convenience and dispatch with which the business can be handled in and out of the terminals. In fact since public regulation has practically prevented competition in rates between the various railroads, the only really important competitive element left is the attraction of business through ability to handle it with dispatch at terminal points.

Considering the New York Central's present freight tracks from the City line to St. John's Park as the metropolitan terminal for the commerce of the wonderful rail system which leads from it, it must be apparent even to the most inexperienced layman that it is grotesquely inadequate. So long as it remains in this con-

dition there is but slight incentive for the other railroads either to improve their waterside stations or to spend the necessary capital for the establishment of new terminal facilities.

The New York Central freight system as at present operated consists of a two-track main line some fifteen miles in length. It enters the Borough of Manhattan across a low drawbridge at the Harlem Ship Canal with a clearance so small that it must be opened for practically all traffic. The road extends along the shore of the Hudson River to an antiquated and inadequate yard in the Manhattan Valley which attempts to serve the large and growing commercial needs of the Harlem district of Manhattan. How wretchedly inadequate that service is, is testified to by all of the commercial organizations in the upper part of Manhattan. The main line continues across the surface of streets in the Manhattan Valley, with dangerous grade crossings, and runs thence along the shore front of Riverside Park to 72d street. The nuisance which its operation has always been to the valuable adjoining property in the Riverside section is too well-known to require discussion. In fact it has localized public opinion to such an extent that the chief public consideration given to plans for the improvement of the line is centered upon this section. Between 72d street and 59th street the railroad maintains an extensive yard served by piers and float bridges. This yard is poorly arranged and completely outgrown, with resultant delay and inefficiency in the handling of freight. From 59th street to 30th street and between 30th street and Hudson and Varick streets the tracks run upon the public streets of the City, an intolerable condition from the standpoint of the public using the

streets and almost completely destructive of efficient railroad operation. At 30th street and at St. John's Park the railroad maintains terminals which are equally as obsolete and outgrown as the 60th street yard.

The entire road is operated by steam, the regulation type of locomotive being used as far south as 30th street, and dummy engines being employed between 30th street and the southerly terminus.

This in brief outline is the existing situation. It is no new problem. The report of the Public Service Commission for 1907 includes this significant statement:

> " For many years the situation has been growing worse and worse; children are killed; needed streets are rendered almost impassible, traffic is constantly impeded by freight trains, and a large portion of an important section of the City finds its progress retarded."

The matter has been officially before various local authorities since the passage of the so-called " Saxe Law " (Laws of 1906, Chapter 109), which attempted to deal with it through the Board of Rapid Transit Commissioners. It has been before the Board of Estimate since the passage of Chapter 777 of the Laws of 1911, which is the statute under which the plans now before the Board of Estimate for consideration and approval have been prepared. No matter has received more earnest and continuous study by public officials and engineering and legal experts for a period extending over more than ten years. Prior to that study and in connection with it there has been an immense amount of consideration of the problem by private individuals and civic organizations, so that with the mass of information which has been col-

lected and presented in various official and unofficial reports and documents there was available in connection with the preparation of the present plan now before the Board of Estimate, a body of valuable information seldom equalled even in a matter of such importance.

Before presenting the details of the present plan I shall outline briefly the various suggestions which have been made from time to time for the organization and development of the west side waterfront of the Borough of Manhattan, in order that those who have not had an opportunity to follow the matter in all of its phases may have before them in concrete and summary form, the whole question of the organization of this portion of the Port of New York and the effect of the adoption of the pending New York Central improvement plan upon the ultimate reorganization of this territory.

II

THE WEST SIDE WATERFRONT AND SUGGESTED PLANS FOR ITS RE-ORGANIZATION

THE Manhattan shore of the Hudson River from the Battery to 59th street, is the most valuable and intensively used portion of the Port of New York, which is equivalent to saying that it is the most important and valuable port waterfront section in the United States. It produces gross annual revenues to the City of New York of over $2,500,000. Approximately forty per cent. of this section is occupied under lease by the various trunk line railroads, all of which, with the exception of the New York Central, have their main terminals in New Jersey. The Manhattan piers are occupied by them as waterfront freight stations, to which once a day a vast floating freight yard is brought from New Jersey terminals on car floats. The ruling practice is to hold these floats at the Manhattan piers until the cars are unloaded by hand trucks, and as soon as possible to reload the cars with outgoing freight prior to dragging the entire yard back to the New Jersey side.

The upland back of the Manhattan piers has been developed by the building of a marginal way, 180 feet in width and a public street known as West street, 70 feet in width, making the entire available street and bulkhead area back of the piers 250 feet in width. It has been the practice to permit the construction of bulkhead sheds upon the outshore fifty feet of the marginal

way, and it is in these bulkhead sheds and in the sheds covering the piers that the entire Manhattan freight business of the majority of the New Jersey railroads is carried on. In addition to the actual transshipment of freight through these sheds, the practice of allowing a certain amount of free storage time has made it necessary to use a very large portion of the shedded area for warehouse purposes. Careful studies of the freight movement at Manhattan piers showed that practically all of the incoming business is handled in between two and three hours in the morning, and that the outgoing business occupies a similar period in the late afternoon. At least two thousand cars per day are handled in and out of these Manhattan waterside stations.

The necessity for dispatching the business within very limited periods of high congestion morning and evening, combined with the cramped conditions under which freight is handled over the piers and through the bulkhead sheds, has produced a condition which places a most serious burden upon the shippers of the City. West street and the marginal way are at times crowded with trucks to a point where it is impossible to reach the freight stations without intolerable and expensive delays. Testimony which appears entirely reliable has been taken by a number of commissions which have investigated the subject to the effect that several hours delay in waiting for a chance to receive or deliver freight is no uncommon occurrence, and that the actual cost to the New York shipper of getting freight to and from the waterside stations is frequently equal to or in excess of rail service as far west as Buffalo.

Part of the difficulty has been due to the inadequacy of the railroad piers, most of which were designed of the

Page 15, 6th line from top should read:

" Lehigh Valley Railroad Company " and not Delaware, Lackawanna & Western Railroad.

type commonly used by water-borne commerce and without particular reference to railroad uses. This condition the Dock Department has sought to aid in correcting as far as possible. Two new piers, Nos. 8 and 9, have recently been built under arrangement with the Delaware, Lackawanna and Western Railroad and the Central Railroad of New Jersey, and are admirably adapted for the prompt handling of rail business. Negotiations are under way for the widening of one of the Pennsylvania piers so as to permit the separation of ingoing and outgoing streams of traffic and make room for the proper classification of freight.

Part of the difficulty also has been the necessity of using the marginal wharf for the temporary storage of goods in transit. In the past this use has been but slightly regulated and the privilege consequently abused. The Dock Department is engaged in working out plans for a continuous bulkhead awning shed which will take care of the necessary overflow from the piers and bulkheads, and will at the same time cause the smallest possible encroachment upon street area much needed for waterside traffic.

Some of the railroads have partially met the situation by the establishment of inshore stations which are directly connected with the bulkhead through tracks leading to float bridges. The station established by the Baltimore and Ohio Railroad at 26th street is the most notable example of this type of development.

There is practically no freight brought to the Manhattan waterside stations for transshipment; it is made up almost entirely of food products and other n for direct consumption in the Borough of Manh

Although the waterfront is as intensively used as any portion of the entire City, there has been a curious stagnation in the development of upland property on West street. The favorable position of this property would naturally indicate its development as a high type of warehouse and industrial district. As a matter of fact it has remained unimproved to the great detriment of the City, and has neither benefitted by the vast volume of waterfront commerce nor contributed to its efficient handling.

This situation has attracted the attention of all who have investigated the problem and most of the various plans which have been put forward for the reorganization and development of the west side waterfront have had as one of their important elements, the utilization of property in the belt between the east side of West street and Ninth avenue. It has usually been proposed to accomplish this by some plan for transferring the railroad cars, which now are allowed to lie at the piers, to some form of inland terminal station.

The various reorganization plans which have been advanced from time to time fall into three classes, all of which have necessarily considered the treatment of the New York Central west side tracks as part of the problem:

(1) Those which proposed some form of through rail service along the marginal way, to be used by all of the railroads, including the New York Central. It has usually been proposed that this railroad should be owned by the City of New York, and that in the event of failure of the various railroads to use it voluntarily that there should be a certain amount of compulsion

exercised by the City through refusal to renew leases of the waterside stations.

(2) Those which proposed the discontinuance of the through rail service of the New York Central to points south of 30th street and suggested the development either of joint union inshore terminals at various points or some form of store-door delivery to be operated jointly by the railroads or by an independent company.

(3) Those plans which have proposed a separate and independent treatment of the trackage of the New York Central and the improvement and development of the Manhattan terminals of the other railroads from time to time as conditions would permit.

In 1908 a committee of the Merchants' Association, of which Mr. Walter C. Kerr was chairman, proposed that the City should

> " construct on West street and such part of the marginal way as may be necessary a freight railway viaduct of two tracks capacity, or a freight and passenger railway viaduct of four tracks from a point at or near Battery place to the freight yards of the New York Central and Hudson River Railroad Co., at 59th street, this viaduct to follow the route of West street for its whole length."

It was proposed that this viaduct should be used both by the New York Central and by the other railroads, and that, when constructed, the surface tracks of the New York Central should be removed. It was proposed that warehouses should be

> " constructed along the waterfront, either on the marginal way or nearby, from time to time as

demanded by the growth and character of commerce, to the end that trucking to and from warehouses remote from the riverfront may be reduced to a minimum."

In July, 1910, my predecessor advanced a somewhat similar plan, but without provision for warehouses on the marginal way. As ultimately developed, this plan called for a four-track elevated road from Fulton street to 60th street. It was proposed that the entire waterfront between 30th street and 40th street should be developed with a battery of thirty-six float bridges and that all of the railroads should be compelled to concentrate their floating at this point. It was suggested that if the selfish interests of the railroads did not lead them to accept the plan that the City might gradually exercise compulsion through its control of waterfront leases.

The purpose sought to be accomplished by these two plans was to remove the terminal business as far as possible from the piers and transfer it inshore, utilizing public streets for running tracks and property to the east for terminal stations and industrial plants. There are difficulties and objections to both of these plans which apply equally to any scheme for a joint railroad along the west side of Manhattan which, in my opinion, make it unwise of adoption.

In the first place, the New Jersey railroads are unanimous in their unwillingness to consider operating over such a line. It is conceded even by the proponents of a joint elevated plan that for a considerable period of years it would be necessary to continue the floating of cars across the Hudson river. The use of rail terminal facilities on the Manhattan side under these conditions

would simply mean, so far as the railroads are concerned, an additional terminal cost which would in all probability not be reflected in a corresponding increase of revenue.

In addition to the through line running tracks a railroad must have storage and classification yards, terminal stations and switching accommodations. One has only to observe conditions on the New Jersey waterfront of New York harbor to see what this means. To provide these in the Borough of Manhattan to the extent necessary were all the railroads to join in the operation of such an elevated line would mean a tremendous overhead terminal cost which would necessarily ultimately be shifted to the shipper.

The operating difficulties in connection with such a scheme are very great. If floating is to be continued it means, as pointed out in my predecessor's report, the establishment of a float-bridge area at least half a mile in length. Owing to the compression of train movement within a short period, both morning and evening, there would result a point of congestion which would inevitably slow up the movement of cars in and out of Manhattan. As has been frequently pointed out, such a float bridge installation would provide what would in effect be similar to the neck of a bottle, limiting the capacity of the entire line. The difficulty of reaching an elevated structure with a clearance of fourteen feet from float bridges at the water level would be very great. To concentrate floating to the point in the harbor suggested by Mr. Tomkins would greatly increase the length of the lighterage haul for practically all of the railroads. It is suggested that the continuance of floating would be a temporary matter and that eventually the elevated

structure would be served either by bridge or tunnel. Under either the bridge or tunnel plan the difference in grade between the point of entry into Manhattan and the elevated structure would be materially increased over the float bridge scheme, and it either would mean an almost prohibitive operating grade or extremely long and expensive approaches. It is only necessary to point out that with very heavy freight trains operating officials demand a grade not exceeding one per cent. to indicate the extent of the necessary approach structures under either a bridge or tunnel plan.

The undesirability of bringing the freight car into Manhattan and handling it on the upland, was recognized in a plan advanced in 1908 by Mr. W. J. Wilgus, a former chief engineer of the New York Central Railroad. He proposed a small bore subway constructed under the sidewalks and running from classification yards in New Jersey under the Hudson river by tunnel and around Manhattan in the form of a belt line. He suggested that freight be transshipped in a New Jersey classification yard and loaded for destination in small cars which could be operated through the proposed subway in such a way as to aproximate store-door delivery to consumers.

One of the serious objections to the plan was the fact that a certain percentage, estimated by Mr. Wilgus himself at ten per cent., of freight reaching Manhattan was too bulky to pass through the subway as projected. The breaking of bulk before delivery was the second feature of the plan which would have placed an additional cost upon transportation. Mr. Wilgus proposed as part of his plan that lower Manhattan service by the New York Central be discontinued, although he did not indi-

cate how he proposes that this shall be done. The plan was submitted to the Public Service Commission of the First District, but no official action was ever taken concerning it.

In April, 1913, there was presented for the consideration of the Board of Estimate and Apportionment an elaborate plan designed by a Mr. D. C. Willoughby providing for a six-track subway along the marginal way from 30th street to Cortlandt street and connected by tunnel with New Jersey. He proposed to construct on the marginal way directly over the subway huge terminal buildings 100 x 750 feet and 9 stories in height, adaptable for warehouse and manufacturing purposes, the earnings from these structures to counterbalance the loss on railroad operation and provide a margin of profit. Mr. Willoughby was not able to satisfy the Board of Estimate and Apportionment that he was in a position to finance this plan and consequently no serious consideration was given to it.

In 1911 the Board of Estimate and Apportionment appointed a committee of engineers consisting of Mr. E. P. Goodrich, Mr. H. P. Nichols, and Mr. E. C. Moore to study the situation. The majority of this Committee, consisting of Mr. Goodrich and Mr. Nichols, recommended the discontinuance of operation by the New York Central at 30th street and the establishment of

> " a number of what may be termed ' combination freight terminals ' or ' unit terminals.' "

As explained in the Committee's report, each terminal was to

> " consist of a new type of double decked pier containing two float bridges, and a terminal building

on the easterly side of the water front street; the pier and building to be connected at the second story level by a bridge or trestle across the water-front street. Upon the pier will be hauling tracks, a "switch back," and a ramp to elevate the cars to the second story, in order that they may not cross the intervening street at grade; also sidings for direct truck delivery at street and second story levels, and storage tracks for cars on the second floor. The terminal building will provide on the first story for truck delivery, on the second for car delivery, and upon the upper stories for storage—all connected by elevators, and the first and second stories by gravity chutes."

It was proposed that each combination terminal

> "be operated by a single road or jointly by two or three, or by a private terminal company in a manner identical with the existing private terminals in the harbor."

The third member of the Committee disagreed with this proposed solution and favored the construction of an elevated along the marginal way.

The unit terminal plan did not meet with a favorable reception either by the railroads or from the shippers generally. It was recognized that operation in the manner proposed would be difficult and expensive and that it would not furnish a service sufficiently superior to what could be accomplished by improving the water-side stations to justify the experiment. At the same time it must be remembered that while it is easy to suggest the discontinuance of operation by the New York

Central at 30th street, there is apparently no power to compel the stopping of operation at any point north of the southern limit of the Company's franchise. It is also a very grave question as to whether it would not be extremely unwise to discontinue through rail operation even assuming it were feasible to do so. Very large and important business interests have grown up in reliance upon the through rail service furnished by the New York Central. It is only necessary to mention such a concern as the National Biscuit Co., which has enormous factories directly served by the tracks of the New York Central to indicate how serious it would be to discontinue these tracks. The unit terminal plan was considered carefully by the Board of Estimate and Apportionment, but was eventually abandoned as an unsatisfactory solution.

There remains for consideration those plans which have dealt with the New York Central situation as a problem which could be solved very largely independently of the questions connected with the general railroad occupation of the west side waterfront.

It must be remembered in considering any adjustment of the New York Central that certain conditions are present which make it very largely a separate and independent problem. In the first place, the New York Central possesses franchises which are apparently unquestionably valid. It has already in its possession yard spaces which make it possible for it to operate tracks in the lower part of Manhattan without the necessity of encroaching on new land areas, which can be used to better advantage, to say nothing of their expense. Most important of all, it is in a position to fur-

nish through rail service without the necessity of constructing bridges or tunnels over the Hudson River.

Official attempts to improve operating conditions on the New York Central's tracks were begun in 1906 with the passage of the so-called " Saxe Law," Chapter 109 of the Laws of 1906 already referred to. The motive behind this legislation and the public interest concerning it lay not in the development of the west side trackage as a more efficient commercial machine, but in the desire of the public generally to eliminate the dangers of operation through public streets at grade. In other words, consideration of the New York Central problem began with an attack upon the so-called " Death Avenue " tracks and gradually developed into a campaign for the improvement of Riverside Park, without at any time centering general public interest upon its commercial side. It is of course true that our great commercial associations, such as the Chamber of Commerce, Merchants' Association and the Board of Trade and Transportation have from time to time emphasized this part of the plan, but their suggestions were for the most part overshadowed in the public mind by the grade crossing elimination and park features.

The Saxe Law provided that the Board of Rapid Transit Commissioners should prepare plans for eliminating operation at grade by the New York Central through the construction of a subway south of 59th street. After providing for a possible agreement with the railroad company it was directed that in the event of failure by the railroad company to accept the plans of the Commission the Corporation Counsel should begin proceedings to condemn the rights of the railroad. No agreement was reached under the Saxe Law

and proceedings were consequently begun for condemnation. The Court held that the Board of Rapid Transit Railroad Commissioners had failed to comply with certain specific requirements of the Act in the preparation of its plan, and therefore that the condition precedent to support condemnation proceedings had not been established.

No results having been obtained under the Saxe Law, the Board of Estimate and Apportionment on May 28, 1909, directed the Borough President of Manhattan to serve notice upon the Company that unless the surface tracks were removed within thirty days he would remove them forthwith. This action was taken upon the theory that surface operation constituted a nuisance which the City could abate under its police powers. The power of the City to carry out its demand was reviewed in the courts and decided in favor of the Railroad Company, it being held that relief must be sought by State, not City, action. The result was the passage in July, 1911, of Chapter 777 of the Laws of 1911. This act still remains in force and is the legislation under which the plans now before the Board of Estimate and Apportionment for consideration have been prepared.

The legislation is in the form of an enabling act permitting the New York Central Railroad to file with the City plans for the relocation and improvement of its west side tracks and giving the City power to accept these plans or to make such substitute plans as it may desire to submit to the railroad for its approval.

Acting under the statute, the New York Central filed with the Board of Estimate and Apportionment

on September 28, 1911, plans which provided for an expanded rail system with increased yard spaces. It proposed that the Company be allowed to construct an elevated along Twelfth Avenue and the marginal way as far south as Cortlandt street. These plans were referred by the Board to its Committee on Port and Terminal Facilities and became the subject of an exhaustive set of negotiations which ended in the submission to the Board on March 27, 1913, of a report recommending the adoption of the New York Central's plans in modified form. As these plans are the starting point for the plan of 1916 now before the Board, it is worth while to consider them in detail.

So far as the main line trackage is concerned it was proposed generally to expand the present two-track line into a four-track line as far south as West 177th street and into a six-track line from that point to the entrance of the railroad yard between 59th street and 72nd street. South of 59th street it was proposed to relocate a four-track line upon the surface of a new 12th Avenue carried in a wide sweep back of the location selected by the City for its thousand-foot piers between 44th street and 59th street. Between 59th street and 44th street it was proposed to construct 12th Avenue as an elevated street connected with all cross thoroughfares by ramps. At about 44th street it was proposed to permit the railroad to begin the elevation of its tracks, reaching a full clearance of fourteen feet on an elevated structure somewhat north of the north line of 42nd street. Between this point and 30th street the tracks were to continue elevated, entering a reconstructed railroad yard between 30th street and 36th street at the second story. South of 30th street it was proposed to permit the Company

to construct at its own expense a two-track subway under Tenth avenue to 15th street, thence under the Gansevoort Market site to the head of Washington street, and thence under Washington street to Canal street, and thence to a connection with the sub-surface of the reconstructed yard at St. John's Park at Hudson and Varick streets.

It is significant in this connection to note that the Committee's report stated that:

> "The Central Company reserves the right to establish its southerly rail terminus at any point north of St. John's Park, the selection of this point, however, to be made by the Company on or before December 15, 1913."

It was also reported by the Committee at that time that:

> "The Committee has further demanded of the Company and the Company has reluctantly agreed that it shall give to the City an option, to continue in force up to the first day of November, 1913, to purchase from the Company its perpetual and exclusive franchises for its tracks in the streets and avenues south of 30th street upon these conditions:
>
> (1) That the City pay to the Company a cash consideration, such consideration having been definitely named by the Company to the Committee and being considered by the Committee to be fair and reasonable.
>
> (2) That the City, upon the exercise of the option, construct or cause to be constructed,

> proper and suitable rail facilities south of 30th street either to a point opposite or near St. John's Park or to Barclay street, including at least two main tracks, with provisions for proper connection with freight stations which the Railroad Company may acquire or own, and also such industries, warehouses, etc., doing an amount of business which would justify a siding or private track, which facilities shall be open to the use of the New York Central and all other roads upon equal terms.

It was perfectly obvious to the Committee that a freight subway along the line proposed would not prove a particularly efficient freight-handling facility. At the same time, the settlement suggested accomplished the removal of tracks from the grades of streets and avoided the construction of a privately-owned elevated in streets or on the marginal way south of 30th street, a structure which was considered by the Committee very objectionable from a civic standpoint.

In addition to the increased main line trackage it was proposed to permit the Company to construct a new waterfront yard directly south of Dyckman street and a very largely expanded yard at Manhattanville. At the latter location it was proposed to permit the railroad company to fill in the major part of the existing cove between 153d street and 144th street, and to construct a yard with a capacity of not less than 1,500 cars. Outshore of this yard was shown, for future construction, three commercial piers and two float bridges. Along Riverside Park south of 129th street it was proposed that the tracks should remain practically upon

their present location and that they should be covered with a steel-and-concrete roof, the surface of which could be treated either as a part of the park system or turned into a waterfront esplanade.

Apart from the criticisms levelled at the aesthetic features of the plan, the most serious objection was raised by commercial bodies to the proposed subway south of 30th street. It was generally recognized that such a subway would be extremely difficult for utilization as a feeder to adjoining property and that at best it could be little more than a means of connection between 30th street and the St. John's Park yard. It occupied valuable City streets with consequent interference with their use for future passenger subways. Incidentally it would have meant great interference with the sewer system of a large portion of Manhattan and disturbance of all of the public utilities existing along the route. As already noted, the officials of the New York Central, in agreeing to the settlement, insisted upon the insertion of a condition giving them the right to discontinue any portion of the through rail service south of 30th street which they deemed it uneconomical to furnish in the manner proposed.

So far as the option to purchase the Company's exclusive franchise is concerned, it was not deemed wise to exercise it because of the unwillingness of the other railroads to consider any scheme for entering into the operation of such joint terminal as the City might provide as a substitute for the New York Central's tracks. The situation reduced itself, therefore, to an option by the City to wipe out the exclusive character of the rights held by the New York Central through a cash payment

and the assumption of obligation to construct a railroad which it was perfectly obvious could only be made to carry itself through the support of other railroads which declined to consider its use. The City was faced therefore with the certainty of a continuing deficit under such a plan with no prospect of the capital invested becoming self-sustaining.

After a number of public hearings upon the plan it was referred back to the Committee with instructions to continue negotiations with the New York Central and to report back such modifications as seemed to be desirable. This was the condition of the matter upon the organization of the present Board of Estimate and Apportionment on January 1, 1914. With the reorganization of the Board the matter was referred to the newly organized Committee on Port and Terminal Facilities, consisting of the Comptroller, as chairman, the Presidents of the Boroughs of Manhattan and Brooklyn, and the Commissioner of Docks.

Upon a re-examination of the plans the Committee decided to take advantage of the provision of the enabling act which permitted the preparation and submission by the City of substitute plans for those filed by the Railroad. As the matter was highly technical and intimately connected with the development of the City's waterfront the Commissioner of Docks was requested to prepare plans for the Committee's preliminary study and consideration.

The matter was thereupon taken up and studied in exhaustive detail and preliminary plans prepared. Information was sought from every possible source, including such suggestions as various civic organizations

made from time to time while the study was progressing. Upon the receipt of these preliminary plans the Committee canvassed the situation thoroughly and decided to associate with itself in an advisory capacity a committee of engineers consisting of Mr. E. P. Goodrich, consulting engineer of the Borough of Manhattan; Mr. Charles W. Staniford, chief engineer of the Department of Docks and Ferries, and Mr. John F. Sullivan, assistant engineer of the Bureau of Contract Supervision of the Board of Estimate and Apportionment. The plans prepared by the Dock Commissioner were referred to this committee of engineers and various details perfected. A subsequent series of conferences with the officials of the New York Central were held and the plans officially agreed to by the railroad. It is these plans which were filed with the Board of Estimate on April 6, 1916, as the City's substitute for the plans originally filed by the railroad. How vitally these plans affect the prosperity of the Port of New York can only be appreciated by a complete analysis in the light of the existing situation.

III

THE PLANS OF 1916

THE New York Central has at the present time within the boundaries of the City approximately 89 miles of single freight track. This includes all of the yard trackage as well as the main line running tracks. If the 1916 plan is adopted it will permit the expansion of this trackage to approximately 134 miles, a very large portion of the addition being made up of track facilities in the new and reorganized yards. So far as trackage in public streets is concerned, there would be almost two miles less under the 1916 plan than the Company has at the present time, and practically all of the new trackage in streets would be elevated, whereas it is now on the surface.

Beginning at the City line, it is proposed to make certain readjustments in the Borough of the Bronx, none of which are of any particular general interest or importance. They involve a slight widening of the railroad right of way to the west, with a small amount of additional fill. The new right of way, however, will be obtained by the acquisition of private property, with the exception of a small parcel of land under water directly north of the Harlem Ship Canal. Here it is the plan to permit the Company to acquire from the City certain land under water necessary for the rearrangement of its entrance to the new bridge which would be built across the canal.

The railroad will cross the Ship Canal with four tracks, and the method of crossing is the first point which affects the interests of the City. At the present time the Railroad Company maintains a two-track drawbridge directly across the entrance to the Canal, with a clearance of but six feet above the line of mean high water. The consequent interference with traffic between the Ship Canal and the Hudson has been increasingly serious, and has had the effect of greatly retarding the development of a large portion of the Bronx waterfront. The United States Government has well-matured plans for the straightening and improvement of the Ship Canal through the creation of a new artificial channel formed by the cutting through of the bend at the Johnson Iron Works slightly to the east of the Hudson River entrance. This improvement will reduce the velocity of the current and will greatly simplify navigation. The State has located several barge canal terminals at various points along the Ship Canal, and it is confidently expected that a very large and important traffic will pass through this waterway with the opening of the Barge Canal. There will certainly be a considerable amount of through traffic between North and East River points. It is of the utmost importance, therefore, that the present low swing bridge should be removed as promptly as possible.

The enabling statute provides that:

> "The said plans and profiles to be submitted by said Company shall also show such changes as may be necessary or required to construct a tunnel or tunnels and approaches thereto, to carry the tracks of said railroad below the surface of Spuyten Duyvil Creek, at or near its junction

with the North River, at such depth as to leave at least twenty-five (25) feet in the clear from the top of such tunnel or tunnels to the surface of Spuyten Duyvil Creek at mean high tide."

The present plans comply with the statute and show two tunnels which may possibly be built in the future. The statute does not require that all of the tracks should be placed in tunnels and a study of the question by the engineers of the City led them to the conclusion that it was not feasible from a practical standpoint to compel the railroad to adopt this form of crossing for its freight traffic. A careful examination of navigating conditions at the entrance to the Canal showed conclusively that if a new bridge were constructed with the standard clearance of the other bridges crossing the Harlem (twenty-four feet, eight inches), that there would be no appreciable interference with traffic. The present plan therefore provides for such a structure located somewhat to the east of the present bridge. It is designed to permit two 100-foot channels, but may be changed to a two-lift span bridge, which will increase the width of channels by reducing the centre pier.

The manner of crossing navigable streams is strictly controlled by the Federal Government, and before the type of bridge can be finally adopted it must receive the approval of the Secretary of War. So far as the Harlem river is concerned, the matter is specifically regulated by an Act of Congress, Chapter 907, Section 1, 1890, which provides that:

"The said bridges shall leave a clear space between the undersides thereof and the high water of spring tides of twenty-four feet, and

shall be provided with draw spans and draws of the width and length to be determined by the Secretary of War, and shall in all respects comply with this law and conform to the requirements of the Secretary of War."

The exact location of the new bridge was determined very largely by the necessity of so placing the Bronx end that a satisfactory operating connection could be secured between the west side tracks and the tracks of the Spuyten Duyvil & Port Morris division of the Railroad. This was necessary because over this division there passes the freight business of the Harlem River and Putnam divisions of the New York Central in reaching the Manhattan freight terminals. The Manhattan end of the bridge was located at a point where the tracks could be conveniently diverted into the new tunnel which it is proposed to construct south of the Canal.

The upper end of Manhattan Island, between the Ship Canal and Dyckman street, is formed by Inwood Hill. This section has an elevation of 180 feet, the maximum in Manhattan Island, and remains very largely in its natural condition, with heavily wooded slopes. The City has had under consideration for a number of years the creation of a new City park on the westerly slope of Inwood Hill as the natural rounding-out of the great system of riverside parks extending north of 72nd street.

At the present time the railroad occupies a 66-foot waterfront strip along the entire face of this Hill, sufficient for a four-track line. The original proposal of the Railroad was that it be allowed to remain upon its

present right of way, elevating its tracks sufficiently to reach the new bridge. This treatment would have destroyed much of the value of the Hill for park purposes. The present plans call for the abandonment of the present right of way by the Railroad and its cession to the City. As a substitute it is proposed to place the four new tracks of the Railroad in a tunnel, which will be carried from the southerly side of the Ship Canal to a point near the northerly side of Dyckman street.

The treatment of the Dyckman street crossing is a matter with which the commercial interests of the City are very much concerned. The topography of Manhattan is such that there is no level cross-island street in the long stretch between Manhattan Valley and the Ship Canal, with the exception of Dyckman street. The legislative act provided that the original plans to be filed by the Railroad should show Dyckman street carried over the railroad tracks. Several schemes were worked out in compliance with this provision of the statute. The railroad originally proposed that a bridge be built across its right of way and that ramps be constructed, both on the inshore and waterfront sides. The 1913 report of the Port and Terminal Committee suggested a modification which would have raised the grade of Dyckman street its entire width all the way from Broadway to the easterly side of the tracks. This plan would have eliminated the inshore ramp, but the riverfront ramp would necessarily have remained.

Both of these plans were defective in placing the barrier of a heavy grade between the waterfront and the upland. A ferry has already been established at the foot of the street, connecting with the Interstate Park, and with the main road to a number of important

New Jersey towns. Plans are under way for extensive market and terminal development directly to the south of Dyckman street and it is reasonable to suppose that the thoroughfare will become increasingly important to the rapidly growing section directly back of it.

The deflection of the trackage into a tunnel through Inwood Hill made it an easy matter to bring them to Dyckman street at a sufficient elevation to provide for an overgrade crossing and avoid entirely the disturbance of the existing street grade. The 1916 plan therefore has adopted this type of treatment and provides for a viaduct with a minimum clearance of fourteen feet. The structure will be made architecturally attractive.

South of Dyckman street the road is continued as a four-track line practically along its present right of way to a point south of West 177th street. Between a point north of 181st street and a point somewhat south of West 177th street they pass through Fort Washington Park. At the present time the Company has a two-track line through the park, for most of the distance through a deep rock cut. It owns, however, sufficient land to permit the widening out to four tracks. The plans provide for widening to this extent and include, as part of the settlement, an obligation by the Railroad Company to construct a steel and concrete roof over the tracks where they pass through the rock cut and the filling-in over the top of this roof, so as to make the area within the right of way available for park purposes.

It is not proposed at the present time to cover any of the tracks between Dyckman street and 153rd street

except where they pass through this rock cut. At the same time the City will reserve in its contract with the Railroad the right to cover these tracks at any time in the future and to use the cover either as a part of the park system or for City streets.

Beginning near the southerly boundary of Fort Washington Park the main line tracks are expanded from four to six and they continue as a six-track line from this point to the 60th street yard. They remain on the surface as far south as 148th street, at which point they begin to rise to avoid grade crossings through Manhattan Valley. There will be no grade crossings, however, the few streets which cross the railroad being carried over by bridges.

Between 144th street and 133rd street it is proposed to allow the Company to expand its present yard facilities so as to increase the capacity from 426 cars to approximately 1,000 cars. The importance of adequate yard facilities to serve the Manhattan Valley is shown by the large amount of business which the railroad is now doing in the very cramped and poorly arranged terminal which it now has. In 1915, for example, there was a total of 264,481 tons of freight handled at the Manhattanville terminal, of which approximately one-half was milk. In fact, the necessity of delivering a rapidly increasing amount of milk at this point has crowded out much of the miscellaneous local freight, which cannot secure proper accommodation under existing conditions. From 1908 the tons of milk have increased from 71,126 to 130,235, whereas the general merchandise received and forwarded has decreased from 159,091 tons to 134,245 tons. The theoretical objections to increasing the size of a railroad

yard located outshore of a highly-developed residential section are, of course, perfectly obvious. Everything possible will be done to reduce any reasonable objection to a minimum; the major portion of the main line tracks will be covered and the City can extend Riverside Park over them to the westerly edge. No buildings will be permitted in the yard except those necessary for actual operating purposes, and even these will be restricted in height, so that they cannot extend above the main line roof structure and will be of a design approved by the Board of Estimate. The Railroad will be compelled to contract that it will not use the yard for the shipment or storage of cattle.

As originally proposed by the Railroad, the yard was planned to extend as far north as 153rd street. It was suggested that the existing cove between 143rd street and 153rd street be filled in out to the bulkhead line and that the new made land be covered with yard tracks. It was also planned to build three commercial piers and two float bridges. The engineers of the Board of Estimate and Apportionment were instructed to study and report upon:

> (1) The possibility of removing the Manhattanville yard to the blocks east of the present viaduct structure across Manhattan Valley, or to relocate it at some other part of the City.
>
> (2) In the event of being unable to recommend its relocation, to report the smallest amount of trackage which would reasonably serve the purely local needs of the Harlem district.

After the most thorough and exhaustive investiga-

tion it appeared impossible to relocate the yard and the plan now under consideration represents the expert judgment of the City's own engineers of the local requirements.

The piers and float bridges have been entirely eliminated and their construction made impossible by the requirement that the Railroad Company cede to the City of New York the fee of all of the land under water which it owns outshore of the yard area shown upon the plans. The railroad is given easement rights in 76 feet of the proposed new marginal way between 135th street and 143d street. This will be used for the temporary storage of freight in transit and for no other purpose. The 1,600 feet of bulkhead will be used by the Railroad for the handling of local lighterage business.

The six main line tracks will leave the Manhattanville yard on an elevated structure carried across the Manhattan Valley parallel to the present street viaduct. All cross-streets will be carried under this elevated with full fourteen-foot clearance. The railroad tracks will be far below the street viaduct and will, to a very large extent, be completely screened by warehouses and industrial buildings which the Railroad proposes to construct over them. These buildings will not be permitted to extend above the floor of the street viaduct, and a provision will be inserted in the contract preventing the use of any portion of the roof for advertising sign purposes. The City will thus secure permanently the continuance of the view from the street viaduct and will protect itself very largely against the continuance or repetition of the advertising nuisances which mar it at present. The blocks between the east side

of the viaduct and Broadway would seem to lend themselves admirably for development for terminal market purposes. They can readily be served from the New York Central's relocated tracks, and they are in direct touch with excellent traffic thoroughfares and sufficiently near the waterfront to permit water service.

Extending south from 128th street the tracks are to be carried partly on the present right of way and partly under Riverside Park to a point near 81st street. The plans call for a combination of tunnel and roofed subway treatment which will completely hide the tracks and permit parking over the roof. The effect upon Riverside Park is discussed in detail elsewhere.

From 81st street to 72d street the tracks will gradually widen out as an entrance to the yard which extends from 59th street to 72d street. These leads have been cut down by the City's engineers to the very smallest possible number consistent with the proper yard treatment.

The yard between 59th street and 72d street will be entirely rearranged and reconstructed, and although the car capacity will not be greatly increased its efficiency will be at least doubled. It is proposed to divide the new yard into four divisions, each at a different elevation. Along the waterfront there will be a strip approximately 250 feet in width upon which the tracks will remain on the surface to serve the float bridges and piers. To the east of this section there will be an elevated receiving yard varying in width from approximately 150 feet to almost 400 feet, which will vary in elevation from 12 to 20 feet and which will carry the main line running tracks as well as the necessary

tracks for receiving freight. From 67th street to 59th street there will be a west-bound classification yard varying in elevation from 5 to 12 feet and between 25 and 375 feet in width. To the east of this classification yard there is provided a local delivery yard having an approximate elevation of 25 feet. This local delivery yard can be directly served by West End avenue and various crosstown streets.

Instead of the present type of yard, in which the sidings are for the most part carried to stub ends on the waterfront, the new yard will be of the circulating type, with tracks running directly through north and south.

The handling of cattle, which now occupies stock yard space approximately 270,000 square feet in extent, close to West End avenue, from 60th to 63d streets, will be shifted south to 59th street, and placed outshore directly to the north of the 59th street pier. It will also be reduced in area to 200,000 square feet. In its new location it will be screened on the south by the powerhouse of the Interborough Rapid Transit Company and on the north by the present railroad piers. It will be nearly three-quarters of a mile south of the nearest point on Riverside Drive, and cannot possibly constitute a nuisance to residents along the Drive or to persons using the Drive and Park. At the present time the City owns the beds of streets and avenues within the yard area. The streets, however, are all closed by act of Legislature, and have for a long period of time been occupied by the Railroad under lease.

It is proposed as part of the settlement to deed to the Railroad Company the fee of streets and avenues

within the yard limits, reserving to the City, however, the right to construct a viaduct in the line of 70th street to the waterfront area which will be ceded by the Railroad Company to the City between 70th street and 72d street. The suggestion has been made that the City should reserve the right to build 12th Avenue through the railroad yard upon the theory that such a street would relieve the present north and south thoroughfares of a portion of their congestion.

It is only necessary to consider the proposed elevations of the new yard to realize that there are serious engineering difficulties in the way of the construction of 12th Avenue, as suggested. It would be necessary to keep the street level sufficiently high to avoid interference with the handling of freight upon the elevated portion of the eastbound receiving yard, which would mean that 12th Avenue would reach the southern boundary of the yard at 59th street approximately 43 feet above the grade of surrounding streets. From this point it would be necessary to construct a ramp easterly through 59th street, involving certain changes of grade and damage to abutting property, or to bring the street down to the grade of the waterfront. If the latter plan were adopted it would mean the construction of a ramp on the marginal way south of 59th street for a very long distance, creating a barrier to the approaches of important City piers and closing the waterfront end of several cross streets. Aside from the excessive cost of constructing 12th Avenue across the yard it is at least extremely doubtful whether it would prove of material public service. It would connect at the north end with Riverside Drive, which should not be opened to business traffic, and at the south end it would reach

a point which would interfere with the traffic from the east and downtown business centers.

As the waterfront between 59th street and 70th street is occupied entirely by the business of the New York Central there is no particular object in securing public access to it from the upland, except in the line of 70th street, as proposed.

As part of the settlement there will be a readjustment of waterfront ownership between 59th street and 72nd street between the Railroad Company and the City, which will be mutually advantageous. The City is to secure from the Railroad title to the bulkhead between 70th street and 72nd street and all land under water outshore. This will make available a strip about 440 feet in length and 40 feet in width, which it is proposed to develop as a site for the refuse disposal plants and coal facilities, thus relieving the Riverside waterfront of the present unsightly commercial and municipal uses. In return the City is to cede to the Railroad Company the land under water covered by the 59th street pier, together with the pier structure. This pier is in reality an integral part of the present railroad yard and has been leased to the New York Central for a number of years. It is a pier which could not be leased satisfactorily by the City. The City will be the gainer by transferring its title to the Railroad Company.

The waterfront between 44th street and 59th street was the site set apart by the City for the construction of its new Ocean Steamship Terminals for passenger and package freight business. The original treatment of this section has been modified by the Dock Department to provide for 1,000 foot piers as far as 50th Street

only, north of which is the restricted Canal Basin area, part of which is now to be a Barge Canal Terminal, and north of that the new Mediterranean steamship terminals which the Dock Department has provided at the foot of 56th and 57th streets, which do not require a depth of slip greater than exists at present. The waterfront changes in this section make it necessary to relocate 12th Avenue and the marginal way, so as to carry them inshore in a sweeping curve between 51st street and 42nd street.

It is proposed to permit the New York Central to leave the 59th street yard with a four-track elevated structure, located upon 12th Avenue, as laid out under this plan. The tracks have been kept sufficiently far inshore to permit of construction to the west of them of a municipally-owned elevated structure to carry two additional tracks. It is proposed that if these tracks be constructed they be used as a part of whatever general system of terminal development may be worked out to include other railroads desiring to reach this section. In order to avoid unnecessary columns a stipulation has been incorporated into the settlement with the New York Central, compelling that Company to spend the necessary additional amount to strengthen the westerly line of elevated columns supporting their railroad sufficiently to bear the easterly side of the municipal structure. This concession is of much importance and greatly increases the value of the reserved space to the west of the New York Central tracks.

There is considerable difference of opinion as to the desirability of placing railroad tracks upon City-owned piers in the North River section. In certain cases it is undoubtedly true that it is of value to be able to bring

a freight car directly to the side of the ship. This is particularly true at European ports, but it must be remembered in this connection that owing to the difference in size between the European and American freight cars the situation is not really comparable. The average European car is sufficiently light to enable it to be moved from place to place by stevedores. Instead of box cars, it is customary to use flat cars, protecting the merchandise by tarpaulin. The cars commonly used on American roads can only be moved by means of switching engines, and it is impossible to employ these to advantage unless there be sufficient yard space and switching tracks back of the piers to accommodate them and move them from place to place as they are required. In connection with the North River situation, it is also true that the business passing over the piers is very largely express matter and package freight, which moves in less than carload lots, and it consequently could not be handled to advantage direct from ship to cars on the pier. The present method of trucking and lightering seems to be the best which can be devised for this particular type of business. With waterfront values as high as they necessarily must be in the very restricted North River section, it is uneconomical to build piers of sufficient width to provide the large area on the deck of the pier for the number of tracks required to handle properly the great number of freight cars. Single or even double line tracks with switches lead to congestion and poor dispatch of freight, which must be handled promptly from or to the ship. In constructing the new pier at 46th street the Department, in spite of its strong conviction that railroad tracks were unnecessary, nevertheless decided to provide structurally for tracks upon

the upper deck of the pier so that it would be simple and inexpensive actually to lay the rails if future requirements of commerce demanded it. The additional cost was so slight it seemed unwise to foreclose the possibility of making a direct rail connection. These tracks could be used from the elevated structure which the City reserves the right to build in the future west of the New York Central Company's line.

From the standpoint of commerce and the best use of the waterfront, the plan now proposed between 59th street and 42d street is infinitely superior to the suggested treatment in 1913, which, it will be recalled, provided for the elevation of 12th avenue, leaving the railroad tracks upon the present surface. Such a treatment would have imposed a barrier between the upland and the waterfront which would have made it necessary for shippers to pass and repass in trucking freight between the upland and waterside stations.

The present plan also has the additional advantage of not interfering with access to the waterfront from any of the cross-streets. The ramp proposed in 1913 to carry the tracks to the elevated structure across 42d street would have closed both 43d street and 44th street.

The tracks will be continued on the elevated structure across 42d street and along 12th avenue to 30th street, entering the upper story of the reorganized 30th street yard in each of the blocks between 37th street and 30th street.

The so-called "30th street yard" occupies at the present time the blocks between 30th street and 37th street and 11th and 12th avenues, between 30th street

and 33d street and 11th and 10th avenues, and between 29th and 30th streets and 10th and 9th avenues. It completely closes 31st street between 10th and 12th avenues, 32d street for practically the same distance, and 33d street from 11th to 12th avenues. 35th and 36th streets between 11th and 12th avenues are also incorporated in the yard area. 11th avenue within the yard area is crossed by a network of busy and dangerous tracks, and there is an extremely dangerous crossing at 10th avenue and 30th street which is only partially relieved by an elevated foot-passenger bridge. From a City standpoint the yard could hardly be more poorly arranged, forming as it does a very serious barrier between important portions of the City and the waterfront and making travel over three north and south thoroughfares dangerous and inconvenient. At the same time the yard, even in its present condition, is a very important delivery point largely used for the delivery of articles of food supply. A large quantity of milk is delivered at this point and quantities of the heavier and less perishable vegetables. The station handles the largest amount of hay coming into the City. The annual deliveries of this product alone are well over 130,000 tons. The yard is served by float bridges between 32d street and 33d street, and the railroad leases from the City three piers which are operated in connection with the yard.

The plans for the improvement of this terminal provide for its complete reconstruction as a two-level freight station. The main line tracks will enter an upper level from the elevated structure on 12th avenue, where they will be admirably arranged to serve a series of ample platforms and driveways. All of the cross-

streets between 31st street and 33d street will be reconstructed as two-level thoroughfares, the upper level giving trucking access to the main platforms on the upper story of the station. 31st street and 32d street will be so treated between 10th avenue and 12th avenue, 33d street, 34th street, 35th street and 36th street between 11th and 12th avenues.

The lower yard level will be served by float bridges between 35th street and 36th street. The tracks will necessarily continue on the surface of 12th avenue and the marginal way between these float bridges and the piers leased from the City. They will not extend east of the west line of 11th avenue, however, which will mean that both 10th and 11th avenues will be entirely relieved of the nuisance of grade crossings. The City has insisted that all the cross-streets and avenues on both levels shall remain as City streets and therefore open to all persons without discrimination. The City will engage to clean, light and police both levels to the same extent that other City streets are so served, imposing upon the railroad any additional burden of caring for the streets which may be caused by their use as a portion of the terminal system. The proposed facilities at this point have been most favorably commented upon by the Merchants' Association of New York, many of whose members have suffered from the intolerable delays in trucking through the present antiquated terminal. A report of the Association, made on June 1, 1916, characterizes the new 30th street terminal as

> "admirably arranged for the avoidance of congestion and the speedy movement of wagon traffic, thereby minimizing the delays now im-

posing a heavy burden of expense upon shippers."

The westerly side of the yard has been substantially modified from the plan as originally proposed by the Railroad Company. In the plans which they filed under the statute the main line running tracks were carried along the bulkhead, instead of on 12th avenue, as now arranged. The Dock Department was unwilling to consent to tracks on the bulkhead, because it was of the opinion that the piers were so located that it might be very desirable at some future time to provide for their lengthening. In all probability the official government pierhead line is as far outshore as it will be allowed to extend. The only opportunity, therefore, of securing any greater pier length is through inshore cutting. Under the pending plan sufficient space is left to permit the lengthening of the piers to 800 feet, which is sufficiently long to accommodate the largest type of freight and passenger steamers which it is reasonable to expect will seek accommodation in this vicinity.

The Railroad Company desired as part of the settlement that the City should cede to it title to several of the piers which are to be connected by tracks with the 30th street terminal. The City was not willing, however, to alienate any portion of this section of its waterfront and such waterfront facilities as the railroad reasonably requires will be granted to it under leases.

The main line tracks south of the 30th street terminal will be reduced to two. They will be carried on an elevated structure extending through 30th street from 12th avenue to a point about 250 feet west of

10th avenue, where they will curve into private property. They will continue south on a private right of way west of 10th avenue to a point between West 16th and West 17th streets, where they will be carried across 10th avenue to a point slightly south of 15th street, continuing on a private right of way to Little West 12th street. At this point they will curve slightly to the east, crossing the Gansevoort Market site to private property on the westerly side of Washington street, and will continue along a private right of way to a new terminal, bounded by Canal street, West street, West Houston street and Washington street. At Gansevoort street it is proposed to permit the construction of an elevated spur track extending west on Gansevoort street to the waterfront and along the marginal way from Gansevoort street to a point slightly south of Little West 12th street, to serve the West Washington Market. The City reserves the right, however, to compel the removal of so much of this elevated structure as is west of the east line of West street at any time upon demand of the Board of Estimate and Apportionment. This reservation has been insisted upon in order to keep the entire marginal way open for any possible future terminal system which may require its use. South of 30th street the Railroad Company will secure from the City the necessary overhead easements for the crossing of streets between 30th street and the new southerly terminal. All of the surface tracks now maintained by the Company in 10th avenue, West street, Canal street and Hudson street will be abandoned upon the completion of the new line.

The terminal between Canal street and West Houston street will be a substitute for the present

freight station maintained at St. John's Park. It is necessary to relocate it because of the difficulty in carrying the new elevated structure across the existing passenger elevated on Greenwich street. In order to provide sufficient area for the new terminal it will be necessary to close Spring street and Charlton street between Washington and West streets. The capacity of this terminal will be about 241 cars.

The entire new line will be operated by electricity, the statute providing that the agreement between the Company and the City shall provide for a specified time, not more than four years from the date of the agreement,

> "within which the use of steam locomotives upon any portion of the railroad of said company covered by such agreement shall absolutely cease and be discontinued, except only in case of necessity arising from the temporary failure of such other motive power as may be lawfully adopted."

A penalty of $500 a day for failure to comply with this provision of the statute is provided.

The elevated structure will be of modern and improved type, designed to reduce the noise and dirt of operation to a minimum.

There remains to consider the effect which the adoption of the plan would have upon the waterfront of the City and upon its park system, and also the financial terms involved in the various real estate exchanges and expenditures by the Railroad for matters of civic improvement.

IV

THE EFFECT OF THE WEST SIDE IMPROVEMENT UPON THE DEVELOPMENT OF THE WATERFRONT

IT has been repeatedly stated by those in opposition to the adoption of the plans that the effect of permitting the New York Central to construct an elevated on a private right of way through the blocks south of 30th street as proposed would be to give to that Company a monopoly of service to what has been called a terminal belt extending from 30th street to Canal street and from the waterfront to 9th avenue. This argument is almost invariably coupled with advocacy of a plan for a municipally-owned freight railroad along the marginal way to which all of the railroads, including the New York Central, should have access. The fact that the railroads themselves do not show the slightest interest in such a project does not seem to furnish a sufficient reason in the minds of persons holding this view for the City's failure to adopt this alleged solution of the lower Manhattan waterfront problem.

The City is faced with two alternatives:

(1) It may turn a deaf ear to the unanimous opinion of the operating officials of the New Jersey railroads against such a plan and proceed to expend municipal funds upon a project which presents no prospect of adequate financial return.

(2) It may refuse either to embark upon such an

enterprise at the present time and at the same time refuse to permit the New York Central Railroad to improve its line with its own private capital, upon the theory that nothing is to be done for the present relief of the commerce of the port, and that a continuance of present conditions shall remain indefinitely until such time as the New Jersey railroads change their policy.

To adopt the first course of action would appear indefensible. No one qualified to speak from experience has been able to demonstrate beyond question that a marginal railroad is the correct form of solution for the peculiar problems connected with the reorganization of the North River waterfront. It is certainly true that the piers are neither of a type nor do they handle a class of business which a marginal railroad is equipped to serve efficiently. It would not be possible, without an enormous expenditure of money for reconstruction, even were it desirable, to establish the type of development along the North River waterfront which has been so successfully worked out at the Bush Terminal in Brooklyn, in which piers and upland warehouses and industrial buildings are tied together with railroad tracks. This is so perfectly obvious that certain advocates of the marginal railroad plan have disclaimed any intention of seeking to connect the piers with such a road and have urged its construction simply as a feeder for the blocks to the east of the marginal street. The chief purpose of such a road would be to furnish spur-track connection to private property. Such a connection is only economical and desirable where the property is developed with a type of industry which requires service in car-load lots. It is the large factory of relatively heavy products and the warehouse handling bulk

freight that requires this type of railroad service. The Borough of Manhattan, owing to the high real estate values, is progressively becoming less and less the place for this kind of business. It is an extremely important manufacturing center, but the class of goods made are the relatively light and expensive products which can bear the high overhead real estate costs.

It is at least extremely doubtful, therefore, even were the various trunk line railroads in a position to furnish side-tracks, whether they could secure an amount of business which would justify the capital cost involved in the connections.

Apart from the service to shippers located directly on the line, it is urged that such a terminal road would greatly improve the general freight distribution by the various railroads through making it possible to establish adequate inland stations in place of the congested waterside terminals maintained by them at the present time. To accomplish this result it is not necessary to construct a main running line through the public streets. The Baltimore & Ohio terminal at 26th street is an illustration of one form of improved terminal which is capable of development. It is not practically feasible to provide adequate classification and storage space for cars on the valuable real estate of Manhattan Island and whether floating is to be continued or whether some form of direct rail connection with New Jersey is worked out, it must nevertheless remain true that the bulk of cargo classification must be done on the relatively cheap land back of the New Jersey waterfront.

These objections should certainly be satisfactorily explained away before the City undertakes the very

large expenditure necessary for the building of a Manhattan freight line.

The second alternative, of denying to the New York Central the right to improve its service in the hope that a way would be found of providing a joint facility which it may use in common with the other railroads, is the surest way of blocking any improvement in the terminal system of Manhattan Island.

The present plan steers a middle course between these two positions. It frankly treats the New York Central problem as one which, owing to conditions, must be handled independently. At the same time, by removing the road from its direct occupation of a water-front street and forcing it into a privately-owned right of way, it keeps open the possibility for any form of water-front terminal, including a marginal railroad, if that be proved desirable, at any time in the future. The soundness of this solution is recognized by the Merchants' Association of New York, an association which is certainly qualified to speak with authority upon this phase of the problem. In the report of its Committee on Harbor, Docks and Terminals made after a thorough examination of the pending plans, it says:

> "It is highly important that the New York Central Railroad be not granted such rights, or so confirmed in those now held by it, as to preclude the provision of necessary facilities for other railroads. To that end it is essential that space for tracks to serve other railroads be reserved by the City along all portions of the waterfront where such use is, or may hereafter become, desirable."

"Such reservation is made under the proposed plans. From 59th street southward the New York Central tracks are so located upon 12th Avenue and the marginal way as to permit the location, to the westward, of additional tracks for the use of other railroads, with unobstructed access to piers and bulkheads. The City retains the fee to all cross streets leading to the waterfront south of 59th street, and can thereby permit other railroads to cross the lines of the New York Central if required. The same reservation will provide proper approaches for a freight tunnel from New Jersey, should such a tunnel hereafter be found desirable."

Since the making of this report an additional safeguard against a possible monopoly by the New York Central Railroad has been secured by the Port and Terminal Committee of the Board of Estimate and Apportionment in a concession by the Railroad to permit the condemnation of sub-surface rights at all points south of 30th street, where the Company owns the fee of private property for its running tracks except under its terminals. In other words, the Railroad Company will place itself precisely in the position of a private owner of such property and will contract not to raise in a condemnation proceeding the defence that the property is already devoted to a public use. The only restriction placed upon such right of condemnation is to be that the property is required either by the City for a municipal terminal system, or by a railroad or combination of railroads proposing a terminal approved by the City authorities. This additional safeguard would make it possible for a terminal system entering Man-

hattan by tunnel to construct subterranean yards, if such are feasible, under the private property owned by the New York Central Railroad. It removes the last possible reasonable objection to the private right of way which the New York Central is to acquire.

Certain objectors to the plan contend that the City, as part of the agreement, should compel the New York Central to contract to open the use, not only of its running tracks, but of its terminals to any road or roads willing to pay a sum proportionate to the use made of these facilities at any time in the future. This proposition, in its last analysis, is simply a suggestion that the New York Central Railroad, after making a vast capital expenditure to build up business which does not exist at the present time, should receive no protection, but should be compelled to allow other companies to secure as much tonnage as possible without any financial risk to themselves.

So far as the suggestion that the City authorities should compel the various New Jersey roads to use a municipal elevated structure whether they wanted to or not through the City's control over waterfront leases is concerned, it should be remembered that most of these leases have a very substantial number of years to run, some not expiring until 1941. It should also be borne in mind that the alternative of failure to permit the continuance of waterfront occupation under these leases is not necessarily joining in a municipal railroad plan. The companies are always in a position to discontinue direct service to Manhattan and compel New York shippers to truck their freight to and from the New Jersey terminals. If there were no active and efficient competition by the one railroad giving through rail service

to Manhattan it is safe to assume that this possibility would become a probability. It is not necessary to dwell upon the disastrous effect which such a course would have upon the commerce of New York.

On the other hand it is reasonable to suppose that the improvement of the New York Central's freight terminal will greatly stimulate the activities of its rivals in seeking to remove the disadvantages which they will be under with their inferior water-side terminals by the improvement of those terminals as far as possible, or by the working out of practical plans for inshore stations. In short, it will introduce a competitive element which is now largely lacking and which seems to be the only method which can be used to compel improvement.

Whether that improvement will take the form of a jointly operated terminal railroad, the development of one or more inshore unit terminals, or the modernization of the waterside stations, or some other plan, only the future can determine. The fact remains, however, that there is nothing in the settlement which the City now proposes with the New York Central which will stand in the way of reorganization by the other railroads. With the marginal street entirely cleared from occupancy by the New York Central and with full subsurface rights reserved under its main line private property south of 30th street, there should be ample opportunity to work out whatever plans may ultimately be agreed upon.

At a number of other points along the North river waterfront the proposed settlement will open the way for important changes and improvements which should prove of the greatest value to the City. Nowhere will

these be more striking than in the possibilities which is presented for the improvement of the important waterfront along Riverside Park and Riverside Drive from 72nd street to 153rd street.

At the present time the jurisdiction of the waterfront between 72nd street and 129th street is under the Department of Parks, with the exception of two areas reserved for commercial use under the Department of Docks and Ferries, one at 79th street and the other at 96th street. Unfortunately, neither of these areas have been developed in the manner in which they should have been in view of their location, in direct proximity to Riverside Park and the highly improved residential property fronting on Riverside Drive. At both 79th street and 96th street former administrations found it necessary to locate facilities for the disposal of City refuse, largely because there was no available waterfront to the south sufficiently near to the sections served to make its use possible. At 96th street there are two large and unsightly coal pockets, which largely serve local needs, and which can only be located at some other point reasonably near to their present location. The City has not had an available site where they could be placed. So far as the disposal of the street cleaning refuse is concerned the Dock Department has already done as much as it could, in co-operation with the Department of Street Cleaning, to render the existing plant at 79th street as little objectionable as possible. The Department's engineers designed a covered structure which prevents the spreading of dust and screens the waterside operations from the Park and the Drive. It is indicative of the lack of co-operation and spirit of unreason-

able opposition which is so frequently met with in attempts of the City officials to improve conditions that certain property owners attempted to restrain the erection of this structure by injunction despite the fact it was stated at the time that it was intended only as a temporary relief from conditions which had become almost intolerable. In addition to the very great improvement which the erection of the cover secured, it has saved the City $30 a day, which was being paid to the lessees of the private dumpingboard previously used. It was stated at the time when it was built that eventually it would be possible either to remove the cover and place it at some other location or to convert it at slight expense into a permanent waterfront shelter similar to other city recreation piers. At any rate, the steel cover has more than paid for itself, even if it should be determined to convert it into scrap. The City administration in reducing the nuisance of the open dump by the covered method acted solely in the interest of the residents of Riverside Drive and the public using the Park.

Unfortunately there has been a very large amount of public misunderstanding of the attitude of the Department of Docks and Ferries with reference to the entire Riverside section, produced to a great extent by a report submitted by my predecessor, the Hon. Calvin Tomkins, jointly with the Hon. Charles B. Stover, a former Commissioner of Parks for Manhattan and Richmond, on December 27, 1910. This report frankly recommended the commercialization of the entire Riverside Park waterfront. It pointed out that it was possible to fill a considerable area outshore of the Park and it proposed that a marginal way 250 feet in width be

constructed, to be used as a landing stage and commercial wharf. As outlined in the report of the then Commissioners of Docks and Parks, the plan was intended to

> "include a series of waterfront sheds, with a promenade for park purposes, and the bridging-over of the New York Central tracks, the whole plan of development to have for its ultimate ideal conditions such as are found at Antwerp, Vienna and other foreign cities that have sought artistic and commercial use of the waterfront."

It was also proposed to construct a great number of commercial piers and float bridges at various points and to permit an extension of rail facilities, not only of the New York Central, but of such of the other railroads as desired to construct tracks to the west of the New York Central Company's line.

It is interesting to note that in the discussion of the present New York Central plan at least one of the civic associations appearing before the Board of Estimate and Aportionment recommended the building of a commercial marginal way as suggested in the report referred to. The present administration of the Department of Docks and Ferries, however, is opposed to the further commercialization of the Riverside Park waterfront, and, in fact, believes that there should be a very material reduction in the use of the present reserved commercial areas.

The suggestion of Mr. Tomkins and Mr. Stover was specifically repudiated by the Board of Estimate and Apportionment with the exception of that portion of the report which suggested the reclaiming of a certain amount of the river by outshore filling. This has been

going on for a considerable time, it being the intention to use it, not for commercial purposes, but for the westward extension of Riverside Park. Apparently the fact that the filling was going on because the City was able to secure such filling at the minimum of cost, has misled some into the belief that it is the first step toward carrying out a plan for a commercial wharf and an extension of railroad facilities.

As indicative of the attitude of the present administration of the Dock Department it is only necessary to point out that one of my first acts as Commissioner of Docks was to withdraw an application which had been made to the Secretary of War for the extension of pierhead and bulkhead lines in the 79th street and 96th street sections. As the first step toward reducing the present commercial uses the Sinking Fund Commission, upon my recommendation, eliminated three unbuilt piers from the City Plan for the improvement of the 79th street district, substituting the short horizontal pier or platform upon which the covered refuse disposal plant is now located. It is the ultimate intention to remove all of the existing piers at 79th street and 96th street, with the exception of one pier at each location, which will be the minimum accommodation necessary to provide for river traffic and for such purely local business as requires pier space in the Riverside Drive section. As already pointed out, the greatest difficulty which stands in the way of removing the street cleaning plants and the coal pockets from their present locations has been the impossibility of finding a suitable substitute location within the area to be served by them. The pending West Side plans offer an opportunity for the acquisition of an admirably adapted new location, be-

tween 70th street and 72d street. The Railroad Company agrees as part of the settlement to cede to the City two blocks of waterfront and land under water between 70th street and 72d street, which can be reached across the viaduct which it is proposed to build in the line of 70th street. The Dock Department has already prepared detailed plans for the development of this area by the construction of three piers. The most southerly pier, in the line of West 70th street, can be developed as a large modern street cleaning disposal plant, equipped to take care of the entire territory now served by the dumping-boards at 79th street and 96th street. At West 71st street a pier can be built which will furnish adequate accommodation for the coal dealers now occupying coal pockets along Riverside Drive and leave room for necessary expansion and for new business. Directly south of 72d street it is proposed to construct an open pier which, in addition to furnishing accommodation for part of the commerce now using piers at 79th street and 96th street, will help to serve as a screen between the Riverside Drive section and the coal and street cleaning piers to the south.

With the clearing-off of the present Dock Department areas there will become available space for the provision of a water-front facility which is very badly needed by the City, namely, proper landings for the officers and men of the United States Navy and of visiting fleets and as accommodation for the safe and proper handling of the great crowds of people who desire to visit the warships during the time of naval reviews. The present arrangements could hardly be worse. Upon the arrival of a visiting fleet at the present time it is necessary for the Dock Department to improvise land-

ing stages at various points along the North River by the driving of piles and the mooring to them of temporary float stages. This is an expensive, cumbersome and highly unsatisfactory method of dealing with the situation, but it is the only possible solution so long as the City has no provision for permanent naval landings. Under present conditions the floats are placed in the midst of commercial developments, with which they interfere and which present unsightly surroundings entirely unworthy of the reception which the great Port of New York should give to its naval guests. The accommodations for the general public are equally unsatisfactory and inadequate. The Hudson-Fulton Water Gate appears to be a long way in the future.

It is proposed to construct at least two naval landings in permanent form, one at 79th street and the other at 96th street, which can be used at all times for public landing stages and on special occasions will serve as naval landings. If it is decided to leave the covered structure now used by the Street Cleaning Department at 77th street this building can be readily converted into a shelter for use in connection with the landing stage. If not it can be removed to the new pier at 70th street. With these improvements completed the whole outshore development of the Riverside Park section will be worthy of its inshore surroundings.

The City will acquire from the Railroad Company as part of the settlement the title to various parcels of land under water between 143d street and 153d street, which will give it unbroken title between these points. There will then be presented an opportunity to provide for a waterfront improvement, which is very much needed as part of the recreational facilities of the City.

With its wonderful waterfront it is surprising that the officials charged with the supervision of public recreation have apparently made no effort in the past to develop proper accommodations for the owners of the large number of craft which furnish pleasure to thousands of our citizens. The boat clubs have been allowed to establish themselves indiscriminately at various points along the Hudson and Harlem rivers with but slight attention paid to the suitability of location, and practically no supervision as to the character of structure which they were permitted to erect. They have too frequently been placed in the midst of surroundings which discouraged the building of a proper form of club structure and which made it impossible to develop the proper class of membership. The uncertainty of tenure and the surroundings in which they have been placed have presented but slight incentive to the building of club houses of a type to reflect credit upon the City's waterfront. It has generally been felt that the conditions were temporary, and that some day there would be worked out a proper and consistent policy for the handling of the matter.

The result has been that instead of possessing a boat club section which is a credit to the Riverside section, we have a conglomeration of shanties, many of which are discreditable both in appearance and in the manner of their use.

Not only are the club houses themselves unsatisfactory, but the provisions for small boat anchorage on the Hudson River are entirely inadequate and in many instances actually obstructive to navigation. The boats have, in most cases, been moored indiscriminately in the

stream, with no protecting shelter, and frequently in the line of operation of the river traffic.

The waterfront between 143d street and 153d street is a natural cove approximately half a mile in length, extending about 1,000 feet inshore of the existing harbor lines and admirably adapted for a yacht basin and anchorage. It is proposed by the Dock Department, provided the necessary land under water is secured as part of the west side settlement, to continue the marginal way which is provided for in the plans south of 143d street in a symmetrical curve between 143d street and 153d street. With a relatively small cost for bulkheading and filling, this will provide a marginal way half a mile in length and 150 or 200 feet in width which can be reached conveniently either along the marginal way from the south or across the bridge which is to be built in the line of West 145th street. It is proposed that on this new marginal way the City shall permit the erection from time to time of houses by such boat clubs as prove to the satisfaction of the Department that they are legitimately entitled to accommodation. These houses should be of a uniform type, of a design to be approved by the Municipal Art Commission of the City, and maintained under strict supervision to insure the proper use of the property. The Department has already requested and has secured the co-operation of the various boat clubs along the waterfront in the appointment of a committee which will work in co-operation with the Commissioner of Docks in investigating and passing upon applications for new boat-house privileges.

Considerable criticism has been levelled at the Commissioner of Docks for his recommendations with re-

spect to the establishment of this boat house section by certain persons who have felt that instead of devoting this natural basin to yachting purposes it should be filled in and made a portion of the park and playground system of the City. It is submitted that those interested in water sports are as much entitled to consideration at the hands of the City authorities as those engaging in other forms of recreation. The New York Central plans provide elsewhere incidental opportunity for very largely increased park and playground spaces, and in my opinion it would be unfortunate if the City should neglect this opportunity to provide for a really splendid yachting basin and site for the housing of its boat houses. If something of the kind now suggested is not done it will mean that sooner or later the Federal Government will prohibit the anchorage of small boats in their present location and that a large and important field of recreation will be denied to the public.

As already pointed out, the City will agree, as part of the settlement, to sell certain fees and easements of waterfront property to the Railroad. This proposition has been received with a certain amount of criticism, the statement being made that it is a reversal of a long-established and wise City policy which has consistently and progressively provided for the gradual municipalization of the City's waterfront. If the transaction contemplated the turning-over to the Railroad Company of shore front and land under water which could be advantageously used for general commercial purposes and if it did not at the same time carry with it a transfer to the City of New York of title to waterfront property far better suited for general civic purposes, this criticism would be valid. There are two important sections in

which the question of alienation of the City's shore front and land under water is involved.

The first is in connection with the railroad yard between 59th street and 72nd street. As already noted, the City will permit the Railroad Company to purchase the pier structure in the line of 59th street, together with the 42,000 square feet of land under water which it actually covers. This pier is now occupied by the New York Central Railroad under lease and could not be profitably used by any other tenant. The City of New York does not own the bulkheads either to the north or to the south.

The Railroad Company is to pay for the land under water at the rate of $4 a square foot, which is the figure fixed by the City's appraiser, and $250,000 for the pier itself. This pier was built in 1901 at a cost to the City of $256,394.88, so that there is written off for depreciation, for a period of over fifteen years, $6,394.88. The City also is to cede to the Railroad land under water in the beds of discontinued streets between 60th and 63d streets, and between 64th and 65th streets. There is also to be ceded to the Company land under water in 13th Avenue, a part of which lies outside of the pierhead line established by the Secretary of War and also an irregular-shaped piece between 59th street and 70th street, almost all of which is outside of the Government pierhead line. In other words, the sales of City-owned property are very largely of parcels which are outshore of the Government bulkhead line and much of which is even outshore of the pierhead line. It may be added, for those who are not entirely familiar with the matter, that harbor lines are established by the Secretary of War, the bulkhead line being the point to which it is

permitted to make solid fill and the pierhead line being the limit for encroachment upon the navigable stream by the construction of piers. The land under water in this yard sold by the City is entirely useless for general port development or for lease to any interest except the railroad. On the other hand, as already noted, the City is acquiring, between 70th street and 72nd street, 254,430 square feet of land under water, together with bulkhead area 400x40 feet. The use which it is proposed to make of this property has already been fully explained.

The second important waterfront transaction is in connection with the improvement of the Manhattanville yard of the railroad north of 135th street. Here, instead of a reduction in waterfront holdings, the City will actually acquire the fee to approximately 1,400 linear feet of additional frontage. This will leave the Railroad Company without fee ownership in any property between 135th street and 153rd street, directly in connection with the Hudson river. It is proposed to grant to the Company easement rights in the outshore 76 feet of the proposed new marginal way between 135th street and 141st street. The City has insisted upon an easement rather than a fee in this section, so as to make it impossible for the Company to build piers and float bridges, which would be a serious detriment to property on Riverside Drive. The use which the Dock Department proposes for the land under water acquired from the Railroad Company between 143rd street and 153rd street has already been fully explained.

The only other point where it is proposed to cede a substantial amount of land under water is in the Borough of The Bronx directly north of the Harlem Ship

Canal. At this point the plans call for the acquisition by the Railroad Company of 168,458 square feet of land, practically all of which is covered by water, extending a short distance along the north shore of the Ship Canal and along the Hudson river directly north of the Canal. This property is so located that no economical use could be made of it for the general development of the Bronx waterfront. It is located at the base of the high promontory forming the Riverdale section of the Borough and it is difficult to see what type of commercial development could be placed at this point to advantage.

There is a certain amount of misunderstanding as to the incidental riparian rights, if any, which the Railroad Company will secure through the fact that in certain places its right of way will be directly contiguous to the Hudson river. The fear has been expressed that it might be possible under these circumstances for the Company to build piers and float bridges. There will be included in the contract between the Company and the City and in the various deeds an express denial of any such riparian rights, except in the 60th street yard area. The Railroad Company is entirely agreeable to this provision and has already formally and officially so notified the City authorities.

V

THE EFFECT OF THE PLANS UPON THE STREET AND PARK SYSTEMS

AS has already been pointed out, most of the popular demand for changes in the railroad has been centered upon the removal of operation across and along public streets at grade. This has undoubtedly been the underlying reason for the legislation which has been passed from time to time, including the statute under which the Board of Estimate and Apportionment is now acting. This purpose is admirably accomplished in the present plans. Grade crossings are removed at Dyckman street, West 158th street, various streets crossing the Harlem Valley, West 96th street and West 79th street. The dangerous and inconvenient operation through the streets and avenues south of 59th street will be entirely discontinued.

In addition, a number of streets will be improved and others which are now practically closed will be made available for public use. West 145th street will be carried across the railroad right of way, giving access to the important waterfront improvement planned north of 143rd street. The grade of West 96th street, which is now extremely heavy, will be greatly improved by the flattening-out of the street between the present bridge carrying Riverside Drive and the westerly side of the railroad right of way. A new viaduct will be available across the railroad yard in the line of West 70th street, the uses of which have already been ex-

plained in detail. All streets running through the 30th street yard, which are now entirely closed and covered with tracks, will be opened through on two levels, as already explained, greatly improving access to the waterfront in this territory.

In addition to these changes the Railroad will grant to the City the right to cover its main line tracks along the entire right of way north of 72nd street, in addition to the covers now specifically provided for in the agreement. An important waterfront street has been considered to extend either between 155th street or 158th street and a point near 177th street. A street or parkway may also be built north of Fort Washington Park, extending north to a connection with Dyckman street. The City will reserve the right in each case to use the undersides of the roofing for all ordinary street uses, including sewers and various public service conduits.

The streets which it is proposed to close under the plan are in almost every case simply map streets, which are not actually physically open and which are therefore not available for public use at the present time. They are almost without exception streets which could serve no important public purpose. A single block of Spring street and Charlton street, between West and Washington streets, will be discontinued and closed in order to permit the proper development of the southern terminal. The closing of these streets will be unimportant. There is ample accommodation for traffic on Canal street to the south and on the various streets to the north, the distance between Canal street and King street, the first open street north of Canal street under the new plan, being only about one thousand feet.

As part of the settlement the Company will abandon its present street surface occupation, including its franchise for the maintenance of trackage through Canal street between West street and Hudson street, and Hudson street from Canal street to North Moore street.

A great deal has been said in the various discussions of this matter concerning its effect upon the public parks. As already pointed out, this is an important consideration, but in the last analysis collateral and subordinate to the major considerations which have already been discussed. At the same time the facts are that there will be a very great improvement in important City parks and the opportunity created for a new and beautiful park at the northern end of Manhattan Island.

As already noted, the plan of rounding-out the waterfront park system of Manhattan through the creation of a new park on the westerly slope of Inwood Hill has been under consideration by City authorities for a number of years, antedating by a considerable period the present negotiations with the New York Central Railroad. It is generally agreed that Inwood Hill possesses natural beauties which should be preserved for the enjoyment of our citizens and which can only be made permanent through incorporation in the park system. To establish such a park without removing the railroad tracks from the waterfront would be to greatly impair its beauty and usefulness, and the insistence upon the tunneling of the hill for the new right of way has opened the way for the accomplishment of this very desirable result. It would be infinitely better from a railroad operating standpoint to leave the tracks in their

present location uncovered and the willingness of the Company to spend the large sum necessary to carry out the tunnel treatment is a direct contribution by the Company to a matter of purely civic improvement and is a part of the compensation which the City is securing for its willingness to permit the expansion of the trackage in the manner proposed.

The treatment of the trackage through Fort Washington Park is a matter which received the most detailed study and attention before determining upon the solution proposed in the present plans. It was suggested in the 1913 report of the Board of Estimate Committee that the present right of way be shifted substantially to the eastward and that the present rock cut be abandoned. This solution would have freed a substantial amount of waterfront from railroad occupation but would have meant that a large number of very beautiful trees would have been destroyed in the building of the new right of way. Subsequent study convinced the present Committee of the Board that a more satisfactory treatment could be secured by the widening of the present rock cut and the roofing of the tracks with a structure sufficiently heavy to permit a substantial fill almost to the crest of the railroad depression. Part of the park extends both north and south of the cut and the topography is not such as lends itself to the covering of the tracks without substantial changes in surface. It did not seem wise at the present time to provide for this roofing but the right is reserved to the City at any time in the future to cover these tracks in such manner as may be desired.

Along the Riverside Drive extension from a point

between 134th Street and 135th Street and extending to a point near 152nd Street the Railroad Company will build as part of the settlement a steel-and-concrete cover extending over the major part of the main line tracks. The Company will build the necessary retaining walls and the City will be in a position to fill in between the present grassy slopes and the westerly edge of the new cover and park the entire area. There has been considerable demand that this roof be extended to cover the entire yard area, or at least that the right be reserved to the City to cover it at some time in the future. The main difficulty in this matter is that the river bottom outshore of the section which it is now proposed to roof is such that it would be impossible to provide foundations except at enormous expense. The experience of the Department of Docks and Ferries in the construction of piers north of 129th Street has shown that there is a large amount of sinking due to the insecure character of the soft silt which forms the river bottom in this locality. This sinking is not serious in the case of piers, but it would completely destroy a steel and concrete roof such as would be necessary for the carrying of a park structure. The engineering advisors of the Committee also report that the supports for a roof would reduce the yard area by about ten per cent. and would make it very difficult to operate with any degree of efficiency.

Riverside Park is the most important of those affected by the improvement. The report of 1913 recommended the widening of the railroad trackage to the west and the covering over of the old and new right of way from 122nd Street to 72nd Street. This would have permitted the creation of a waterfront esplanade

between the present Riverside Park and the river. It was a form of treatment which was very much less expensive than that now proposed but it was recognized that it would change the character of Riverside Park. In arriving at the present proposed solution an effort was made to so locate the railroad that the Park could be carried over the roof in such a manner that it would not materially change the existing topography. Various studies were prepared upon different locations. The one finally selected was chosen because it provided for the smallest disturbance of the Park and the most satisfactory restoration of natural slopes. It is estimated that the treatment proposed will cost over ten million dollars, which the Railroad has been compelled to assume as part of the compensation for the new rights granted to it. In order to visualize the Park after the proposed changes, the Board of Estimate and Apportionment caused a model to be made on a scale of one inch to twenty feet showing the entire section from 72nd Street to 153th Street. The technical accuracy of this model is certified to by its makers. It completely bears out the statements made in the various reports of the Board of Estimate Committee that it will be practically impossible after the completion of the work to trace any substantial portion of the railroad right of way from an observation of surface conditions. The model also shows very clearly the impracticability of trying to follow the line of Riverside Drive, the suggestion made by certain citizens. Not only is this route so crooked that it could not be adopted without passing under private property and encroaching upon portions of Riverside Park but it also should be remembered that such a line could not be built without greatly dis-

turbing the surface conditions and interfering with traffic upon the Drive for a very substantial period.

The surface treatment of the restored Park is shown on the model according to plans prepared by the Department of Parks, and shows the possibility of establishing important playgrounds and adding to the walks and other park facilities. It is not necessary that this exact treatment shall be followed. The Railroad Company has, however, agreed to pay $300,000 for park restoration, which is the estimated cost of completing the improvements shown upon the model, with the exception of planting. The Railroad Company has also agreed that it will contract that within a reasonable time, to be named in the contract, changes may be made in the topography, with the stipulation that if these changes involve a net additional cost in the supporting structure that the City will bear the increase. The railroad cover is designed to bear a uniform weight of three feet of earth. There has been a considerable amount of discussion as to whether this is sufficient. As it is a purely technical matter, I will quote from a report made by Mr. Charles W. Leavitt, civil engineer and landscape architect of undoubted standing and experience. This report was made to the New York Central Company under date of May 8, 1916, in response to their request for an unbiased opinion upon the matter. Mr. Leavitt stated, in part:

> "Riverside Park is a partially developed city park, built upon the steep eastern bank of the Hudson River, extending from 72d street north in New York City. Owing to the construction of streets and houses to the east of this park, the rain and snow in that area, instead of soaking

into the ground and percolating gradually to and through the park to the river, is cut off and conducted by roofs, paving, pipes, etc., into sewers and drains. On this account, there can be, in the park area, no moisture other than that which falls directly on it and which is available for that area only before run-off or evaporation takes place, and, because of the paths, drives, etc., much of this water is carried away by drains, pipes and other artificial means. While this, in some ways, is desirable, as it keeps the paths dry and prevents washouts, on the other hand, it tends towards dry and sterile soil conditions, which are still further aggravated by the fact that the land slopes in such a manner as to present an almost right angle front to the direct rays of the afternoon sun. The leakage from gas mains in nearby streets is not an advantage to soil conditions and does not create surroundings healthful for vegetation."

"As to the depth of soil in the present park, I find that generally there is very little. Below 90th street, and thereabouts, unless some pockets of soil exist in the rock, or are made by excavation, and sufficient topsoil and moisture provided, it is difficult to support anything but small trees, shrubbery and plants. In fact, there are not many large trees in the park, excepting on the lower slopes of the west side, where some very beautiful specimens are found growing upon rock with but 6 inches to 3 feet of soil on its surface. This soil is moistened by seepage from the upper, eastern portion of the park, the moisture being

retained and brought to the surface by the rocky formation, thus making the lower, western portion a more desirable location for trees than is the upper, eastern border, although the latter has the deeper soil. In many portions of the park I find not more than a few inches of topsoil existing, in almost every case, upon rock or a practically sterile subsoil of decomposed mica-schist, which is such a dense material that it is difficult for the roots of trees to penetrate it. Very little nutriment, if any, is given to the trees by this subsoil, especially since, owing to conditions described above, there is practically no moisture supplied by it."

"In general, the plans contemplate forming a terrace or bench at the lower portion and under the toe of the natural slope, immediately above the River, the tracks to pass beneath this bench, the roof of the bench to be of concrete, waterproofed, and such waterproofing to have, perhaps, a protecting covering of concrete; superimposed upon this structure, there is provision made for at least 3 feet of soil, excepting in the case of walks and paths, where you have provided for a cushion of 2 feet of material. There is no question but that 2 feet would be ample depth for the cushion of filling under such walks and bridle paths as might be constructed on this terrace, and the problem, therefore, seems to resolve itself into the question as to whether or not shrubs, trees and other plants can be planted about these walks and bridle paths, and in proximity to them, so that such plants will

grow and form a beautiful and natural appearance."

"I feel confident that there can be created a condition which will be superior to that now existing along the western borders of the present park, and that there can be planted in this new portion all the vegetation necessary to make a park, with the assurance that it will grow and thrive, and be satisfactory in every way."

"It is my understanding that you contemplate a minimum depth of 3 feet of soil for the planting areas and that, in many places over the tunnels this depth will be somewhat greater. Also, I understand that the Park Department may desire to change the location of the walks and paths indicated on the present plan and that you will make provision in the supporting structure so that, should such change be made, there can be at least 3 feet of filling at any place on the roof. This would provide sufficient depth for a material which would act as a mulch or baffle to hold back the moisture that would fall directly on it, or seep from the upper portion of the park. Such a topsoil would act as a substitute for a forest floor in nature, retaining in suspense this natural rainfall and seepage for a length of time sufficient to enable it to be absorbed by the vegetation, and creating a condition superior to that now existing over very considerable portions of the park. In this material can be planted all the vegetation necessary to a park of high order."

There also appears to be a certain amount of misunderstanding as to the effect which the proposed park treatment will have in obstructing the river view from the Drive. The model and also perspective drawings which have been prepared by the Committee show conclusively that at no point, except in the direct line of 79th Street, will a view of the Hudson be shut off by the treatment proposed. A curious criticism has been made of the plan in that it does not provide for the completion of Riverside Park between the railroad right of way and the river. This objection is of course entirely unreasonable in that it is a matter with which the Railroad Company has absolutely nothing to do and is work which the City must undertake as part of its general park improvement. There can, of course, be no present appropriation for this work for the reason that it cannot possibly be undertaken economically until after the completion of the railroad improvement. The Board of Estimate Committee has pointed out that with the completion of this improvement there will undoubtedly be a very proper demand for the finishing of the outshore portion of the Park and that the City can look forward now to meeting that obligation at an early date.

VI

FINANCIAL TERMS OF THE SETTLEMENT

IT must be clear from the foregoing that the settlement must reflect very greatly to the advantage of the commerce of the City, as well as to the advantage of the railroad in its ability to attract a largely increased tonnage through the improvement of its tracks and terminals. There remains to consider the financial side of the proposed settlement.

Apart from the very large capital expenditure which the Railroad Company will be called upon to make to carry out the improvement, as has already been indicated, the plan calls for the spending of large sums at various points for matters which are primarily that of municipal rather than railroad importance. These amounts constitute the price which the Railroad is paying for the willingness of the City of New York to grant its permission for the expansion of the Railroad's facilities. The various estimated amounts which must be spent by the Railroad for these municipal purposes may be summarized as follows:

Inwood Hill Tunnel	$1,492,000
Fort Washington Park	440,000
Riverside Park	10,582,000
Manhattan Main Tracks Cover	2,114,000
Part of Construction of Municipal Tracks on Marginal Way below 60th street	80,000
Total cost for municipal benefits	$14,708,000

As has already been stated, there are at various points sales and purchases of real estate between the City and the Railroad, the Railroad acquiring such fees and easements owned by the City as are necessary to complete its improvement as projected, and the City acquiring various parcels of upland and waterfront needed to improve its park system and its waterfront holdings.

The real estate involved was appraised for the City by the Real Estate Expert of the Department of Finance. His figures showed the following results:

Lands and easements sold by the City to the Railroad Company	$11,094,381
Lands and easements sold by the Railroad Company to the City.....	4,984,482
Balance in favor of the City.....	$6,109,899

The difference between $14,708,000 and $6,109,899, or $8,598,101, is the net amount which the Railroad is paying in the form of municipal improvements for its enlarged privileges, over and above the actual value of the real estate purchased from the City of New York.

The real estate figures of the Comptroller's Expert were carefully examined and checked by the firm of George R. Read & Co., which was employed by the Board of Estimate and Apportionment for the purpose. The differences between the figures of this firm and the Real Estate Expert of the Department of Finance were entirely negligible.

In view of all of these facts it would appear that the City of New York is securing a most advantageous bargain in settling the West Side problem upon the terms

proposed. Certainly the indirect advantages accruing to the commerce of the Port would alone be more than sufficient to justify its adoption even without the direct advantages which have been secured.

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